

Application No.

Applicant(s)

09/942 114

SHARAN SUJIT

Office Action Summary

Examiner

Art Unit

Timothy H. Meeks

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 1) ☐ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 2) ☐ Claim(s) 19-39 is/are allowed.
- 3) ☐ Claim(s) 1-4, 6-10, 14 and 16-18 is/are rejected.
- 7) ☐ Claim(s) 5, 11-13 and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 29 August 2001 is/are a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other

DETAILED ACTION

Claim Objections

Claims 15, 21, 24, 28, and 36 are objected to because of the following informalities: In line 1, "consist" should be "consists". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 16-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 16, last two lines, "the integrated memory circuit" lacks proper antecedent basis as only an "integrated circuit" was previously mentioned. The claim is deemed to be open to any integrated circuit for the purposes of the art rejections set forth below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 6-10, 14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto et al. (6,022,586).

Hashimoto discloses forming precoating layers on the internal surfaces of a reactor having a showerhead at an internal temperature of 500 to 800 °C (col. 9, line 54- col. 10, line 35).

and forming the material of the precoating layers on an integrated circuit substrate in the precoated reactor at a temperature of 700 °C (col. 11, lines 10-15).

Hashimoto does not explicitly disclose that the precoating films are formed on the showerhead or that a different or higher temperature of the showerhead than the normal deposition temperature is used. However, because the purpose of the precoating films is to render the thermal reflectance in the reactor similar for the wafer deposition and thereby improve film formation reproducibility (col. 9, lines 60-66), it would have been obvious to coat all parts of the reactor including the showerhead with the precoating layers because doing so would be expected to prevent the showerhead from changing the thermal reflectivity during processing and hence improve film formation reproducibility. Furthermore, given the range of 500 to 800 °C as the internal temperature for precoating the reactor and the 700 °C temperature for coating the substrate, it would have been obvious to use temperatures different from or higher than the 700 °C deposition temperature with a reasonable expectation of these temperatures being operable as is explicitly disclosed by Hashimoto.

Allowable Subject Matter

Claims 5, 11-13, 15, 17, and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 19-39 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:
The main patentable feature(s) of the claims listed directly above are use of a temperature difference greater than 50 % different from the normal deposition temperature which is outside

Art Unit: 1762

of the operable temperatures disclosed by Hasimoto and not reasonably suggested thereby, provision of the different temperature by changing the separation between the showerhead and substrate holder, providing a material layer comprising Ti or consisting essentially of Ti, Al, Cl, and N atoms, or providing a plasma at the showerhead. Each of these features are not taught or fairly suggested by the prior art as recited in the claimed process.

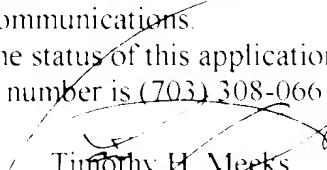
Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. 2002/0094387 discloses conditioning of a showerhead but at the same temperature as used for forming material on the substrate.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy H. Meeks whose telephone number is (703) 308-3816. The examiner can normally be reached on Mon., Tues., Thurs (6-6:30), Fri (6:30-10:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P. Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


Timothy H. Meeks
Primary Examiner
Art Unit 1762

nf
May 8, 2003